MYRMECIA

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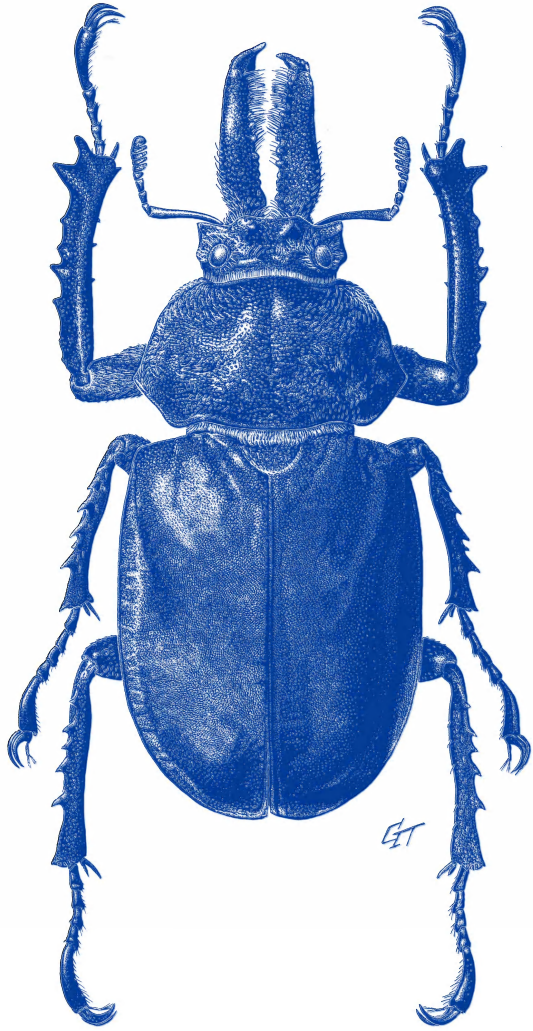

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THE COVER
Sphaenognathus (Australognathus) munchowae, a second Australian species of this Gondwanan Stag Beetle genus, recently described in the Memoirs of the Queensland Museum, by Barry Moore and Geoff Monteith. Illustration by Geoff Thompson, Queensland Museum.

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COPY DEADLINE FOR SPECIAL ICE2004 ISSUE

Material for the February 2006 should reach **Murray Fletcher (who will pass it onto the new Editor)** by **Friday 13th JANUARY 2006**.

Please submit text as .rtf files, and pictures as 300dpi .jpg files.

EDITORIAL

Hi.

I have to admit that it is with some relief that I put together this last edition of *Myrmecia* prior to handing it over to someone else. For reasons that I don't understand, *Myrmecia* deadlines seem to inevitably coincide with busy periods at work. As I write this, the fate of *Myrmecia* is still uncertain as no one has offered to take it on. I think that the Society would be much the poorer without *Myrmecia*, so I'm hoping that someone will volunteer. I should emphasize that the only reason that I am not continuing as editor is my tenuous employment situation.

Collating the newsletter each quarter is made much easier and more pleasant as the result of the efforts of our Regional Councillors, Executive and members contributing news, book reviews and pictures. All contributors have my gratitude, particularly as they are remarkably punctual!

Spring means that blue-banded bees (*Amegilla* sp.) have started flying, so I'm going to be spending more time outside, practicing my net-swinging skills trying to catch nimble bees. I'm part of a team at Macquarie University, led by Andy Beattie and David Briscoe, investigating antibiotics and the evolution of sociality. Spring also means that the UV light and white sheet are hung outside our back door, ensuring that Dave (Britton) never catches up with his backlog of insects to set. It's amazing that even in Sydney, which must have one of Australia's better studied insect faunas, there are still many undescribed species waiting for attention from entomologists. As fun as it is to travel to new and exotic places to collect, it seems that taxonomists, at least, still have plenty of work to do close to home.

And since the shop decorations tell me it is close to Christmas, here is a bit of silliness. A few weeks ago I was sent the URL to the web page outlining the danger posed by cicadas (http://cicadaville.com). Yes cicadas kill!! From the web page: Save the Children! Losing your child to a deadly Cicada can be very traumatic. To prevent such a tragedy, we recommend wrapping your children tightly with shrink-wrapping. And for the rebuttal - ie cicadas are misunderstood: http://www.mlcsmith.com/humor/cicada. In a wonderful bit of synchronicity, I'm writing this at home on a warm Sunday evening and, stepping outside to

stretch my back, heard the first of this summer's cicadas singing.
I'll be floating around the conference in Canberra in December, so if anyone would like to get the dirty, honest truth about editing *Myrmecia*, please feel free to find me for a chat.

Tish SILBERBAUER

WELCOME TO NEW MEMBERS

We would like to extend a welcome to new members:
Elizabeth McGuire from Mildura, Victoria
Amanda Kobelt from Victorian DPI, Melbourne

LETTERS

From Fred McDonald

I should like to thank the executive and members of the Australian Entomological Society for the privilege of being awarded life membership of the society at the last Annual General Meeting. I have, I suppose, spent a lifetime teaching students the rudiments of entomology. It is with pleasure I find my students successfully established in all walks of life and to meet them on various occasions. It is to me sad to see the decline in the teaching of entomology in Universities these days. However, there is no doubt that what goes down comes up again in the long run. The insect world is much too large and important to be ignored for too long. If we continue to have agriculture in our economy there will always be a need for entomologists.
I find it ironic that I end my career where it started in 1958 at the University of Queensland and in the Goddard Building. However, the once-thriving Department of Entomology has been incorporated into the new School of Integrative Biology, which is, in fact, what is happening worldwide. I hope to be able to continue my work on the Pentatomids for a few years, before old age takes over. I wish the Society every success and a very long life into the future.
F.J.D. MCDONALD

From Stephen Doggett

Dear Colleague,
You may be aware that there has been a dramatic resurgence in bed bug infestations over the last few years. Not only is there the associated health risks from the nuisance biting, but the accommodation & tourism industry has been hit very hard financiallyin having to deal with this public health pest.
The resurgence of bed bugs has caught many unawares with the result that treatment failures are common, and bed bug infestations have continued to rise.

In an effort to stem the rise of bed bugs, a Working Party was formed in June 2005 by the Australian Environmental Pest Managers Association (AEPMA) to develop a Code of Practice (CoP) for the control of bed bug infestations in Australia, with the principle author being Stephen Doggett from the Department of Medical Entomology, Westmead Hospital, Australia.
The CoP endeavors to provide a reference document, which would be a guide for pest managers, the accommodation industry, service industries and professions, and the general public on best practice in the control of active bed bug infestations, and the minimisation of the spread of existing infestations and the prevention of possible future infestations.
The expected outcome from adherence to the CoP would be to minimise the impact of bed bug infestations wherever they occur.
The Draft of the CoP has now been released and is available for public comment. This can be downloaded from www.bedbug.org.au (click on the 'Bed Bug Code of Practice' button).
All submissions on the CoP are to be directed to:
Stephen Doggett
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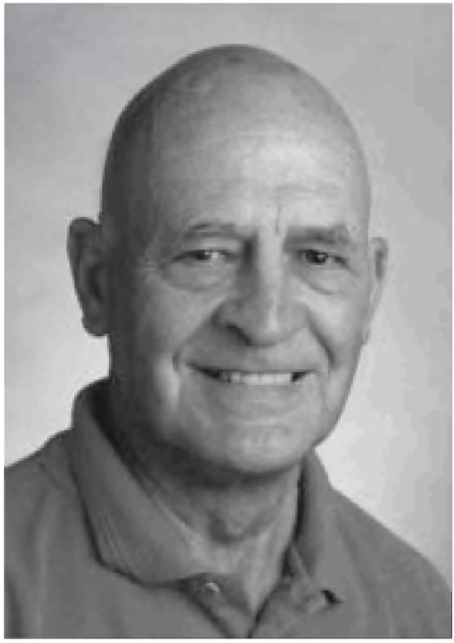
Westmead Hospital
WESTMEAD NSW 2145
Email: stephend@icpmr.wsahs.nsw.gov.au
Fax: 02 9893 8659
The closing date for submissions is 28/Feb/2006.
All submissions will be compiled, summarised and made available on www.bedbug.org.au. If you wish to remain anonymous, please note this with your submission. Following the closing date, the Working Party will meet and all comments will be considered in the formulation of the final release of the Bed Bug CoP. The Bed Bug CoP will be officially launched during 26-29 July 2006 at the joint AEPMA/FOAPMA meeting in Brisbane.
Feel free to forward this email to other interested parties.
Yours sincerely
Stephen Doggett

OBITUARY – Dr Derek Maelzer

Derek was born on the 6 July 1929 in Calcutta and spent his childhood in the picturesque Himalayan Mountains of India. During Derek's senior year he sat Cambridge entrance examinations. Due to the high rate of ships en-route to England being sunk by the Germans, he had to fill out his exam paper in triplicate using carbon paper, to be sent on three separate ships. Although Derek scored highly on this exam and officially gained entrance to



Dr Derek Maelzer 1929-2005

Cambridge, the conclusion of the war meant that many of the available places were reserved for returning servicemen. It was therefore suggested that Derek should instead consider going to Australia to undertake his studies.

Travelling to Australia by seaplane in 1947, Derek enrolled in a chemical engineering degree at the University of Western Australia. However, after exposure to several compulsory biology subjects, Derek formed an addiction to this intriguing area of science. He embarked on postgraduate studies in South Australia, examining the ecology of scarab beetles under the guidance of H.G. Andrewartha. Part of these studies involved some novel research examining the survival of *Aphodius howitti* larvae at different pF levels. Derek took longer than most to complete his PhD due to a scarcity of beetles which delayed much of his experimentation during the first years of his studies. A return to more typical scarab influxes allowed Derek to complete his PhD. He graduated in 1958 and commenced lecturing at the University of Adelaide's Waite Agricultural Institute. During his postgraduate studies, Derek married Eva Maund who, a few years later, had their first child Bronwyn, followed by Rod, Jenny and Carol over the following six years. In talking to Derek's children (Jenny and Carol) they recalled numerous instances were Derek's enthusiasm for biology and entomology provided a common theme for many of their childhood experiences. Some favourite memories included their regular camping trips into the bush. Apparently Derek was very keen to expose his children to nature and it was common for him to bring the car to a rapid stop during these trips, upon which he would leap out and scarper off into the bush leaving the kids expectantly waiting to see what creature or plant he would bring back. Carol and Jenny recalled one such trip on which their father suddenly stopped to examine some prickly pear for *Cactoblastis cactorum*. He asked the girls to stand beside the cactus to provide perspective for a photo. When the girls fell into the cactus, Derek considered their rather abrupt introduction to cacti prickles all part of the natural history experience. Derek's enthusiasm for understanding nature and the patterns within it went so far that he purchased a highly unfashionable (according to his children) yellow car and at the conclusion of every trip he would carefully inspect the radiator grill to see whether the yellow car attracted more insects than his previous white sedan. Needless to say Derek's enthusiasm for biology was a common thread throughout his personal and professional life.

During his career at the Waite, Derek assisted and supervised nearly 50 postgraduate students on all facets of entomology. Derek believed in giving back what he had been fortunate in receiving and especially gave time to students from developing countries. Derek was well regarded for his patience and perseverance in teaching students for whom English was not their first language. Derek often shared supervisory responsibilities with Roger Laughlin who recollected that Derek could always be relied upon to come up with interesting ideas and comments (although not always flattering). One of Derek's great strengths was his ability to make people think. His doctoral students would invariably be sent back to the drawing board as often as it would take to make them think in terms of testable hypotheses. Having achieved that, he would re-challenge his students to anticipate the results and visualise the statistical analysis. If this could not be done, it was time to re-examine the hypothesis.

In 1975 Derek sold his house in Adelaide and moved his family to Loxton, where he worked at Loxton Research Centre until 1980. During this time, he travelled to Adelaide, some 240 km, to deliver lectures to his undergraduates. He encouraged his postgraduate students to undertake field experiments on subjects which might have some

practical application. With his undergraduate and postgraduate students, he worked on such diverse projects as pollination of lucerne crops, the dynamics of red scale and its parasitoids in citrus crops and even, (a far journey from his very early work in ecological theory), pesticides and their application. Derek also had a keen eye for the potential of regularly-collected data gathering dust in filing cabinets. Thus began his exhaustive analysis, spread over a number of scientific papers, of fruit fly outbreaks in South Australia.

Those who were associated with Derek during his years at Loxton will remember him as one who gently challenged his colleagues and students to propose falsifiable hypotheses and undertake proper experiments, even under highly variable field conditions.

Derek's career was made notable by his passion for ecology and statistical analysis. Derek was very much a pioneer regarding the use of computers and their application for examining complex ecological problems. Notable examples include his use of computers to solve problems in interpreting density dependence relationships and the use of regression. Those that had the fortune of working with Derek would no doubt recall him asking questions like "Have you done an experiment that tests your hypothesis?" Derek's critical thinking abilities and experimental approach to his research served him well and allowed him to stand out amongst the scientific community.

Apart from science and his family, Derek was an enthusiastic sportsman who played hockey as well as tennis and squash. On the squash court, Derek had an unlikely physique for a squash player, but as many a student discovered after challenging him to a match, he played a cerebral game, placing his shots with minimal movement. That is, until the fateful occasion when the student to whom Derek had suggested a game, was unbeknownst to him, the South Australian open squash champion. Never one to hold grudges, Derek conceded good exam marks to the student who conceded no points on the court. Derek was also science fiction fan, and often swapped books or went to the latest 'Alien' movie with like-minded postgrads.

During the early 80s, Derek and his wife Eva gradually grew apart and later separated. In 1987 he became re-acquainted with a childhood friend Pam Windsor who later joined Derek on a sabbatical trip where they visited various research institutions throughout Europe and the United States. After returning from this trip Derek and Pam decided to become life partners.

Derek retired from Adelaide University in 1992 and, together with Pam, shifted to some acreage outside of Gatton in Queensland. In 1995 Derek became an Honorary Research Fellow with UQ and began a fruitful working relationship with Meron Zalucki which culminated in the publication of several papers on *Helicoverpa* modelling and forecasting. Derek also, unexpectedly, assumed full supervisory responsibilities two postgraduate students (myself and later on Renee Herde) at the University of Queensland's Gatton Campus. Derek's willingness to immerse himself back into a supervisory role during his retirement is further testament to his generous nature and enthusiasm for being involved in ecological research.

Derek was a unique, humble human being who had a genuine interest in helping others become all that they could be. Something that characterised Derek was that he was determined to continue working with those around him to make a difference. In fact, Derek spent what was to be his last day, Thursday 18 August, visiting the UQ St Lucia campus to discuss new research projects and ideas with Meron Zalucki and myself.

Derek has made a significant contribution to the field of ecology and entomology in Australia through his own research as well as an immeasurable amount of time spent teaching and supervising students. In preparing his eulogy I came across the following quote by Henry Adams:

"A teacher affects eternity; he can never tell where his influence stops".

With his rigorous approach to experimental ecology Derek has influenced a whole generation of entomologists, and despite his humility, he would now be justifiably proud of the achievements of the many graduates he educated. His influence will continue well after his passing.

Paul GRUNDY

Dr Derek Maelzer retired in 1992 from the Waite Agricultural Research Institute, University of Adelaide where he had lectured since 1957. Since 1 January 1995, Derek Maelzer maintained an Honorary Research Associate position at UQ. During this period, he worked with Myron Zalucki as well as with staff and students at Gatton Campus on various projects. Derek Maelzer assisted Myron Zalucki and his students with experimental design, data analysis, modelling and interpretation. Together they published a number of papers. As an honorary research associate Derek Maelzer helped supervise a number of PhD students including Paul Grundy, Renee Herde (nee Baynes) and Brenton Peters. In his retirement,

Derek Maelzer remained an active contributor within the field of ecological entomology, publishing a range of papers on topics spanning the novel use of assassin bugs for biological control and the modelling of regional fruit fly abundance through to identifying correlations between the Southern Oscillation Index and Ross River virus outbreaks. After spending what turned out to be his last day visiting the St Lucia campus to discuss new and continuing research project work with Myron Zalucki and Paul Grundy, Derek died in his sleep on 19 August 2005. He will be sadly missed by friends and colleagues alike.

Myron ZALUKI

BOOK REVIEWS

The Evolutionary Biology of Flies. Yeates DK & Wiegmann BM eds. Columbia University Press, New York. 430pp.

The progressive development of ideas in biology is marked by a few dominant dates. Aristotle in about 250BCE expounded his four 'causes for existence' that remained prominent in western philosophy for 2000 years. Darwin in 1859 recognised the importance of selection, a process that might be considered equivalent to Aristotle's 'moving cause', and Watson and Crick in 1953 gave us the molecular mechanism that might be considered his 'formal cause'. But in our examination of the diversity of life the Aristotelian concept of 'general resemblance' remained, indeed in some places continues to remain, the *modus operandi*. In rejecting this, Hennig in 1966 provided English-speaking biologists with the first satisfactory theoretical basis for examining evolutionary relationships between organisms. Curiously, it was in that year that two eminent entomologists in London told me witheringly "not all of us are interested in comparative biology", but Willi Hennig's logical system progressively revolutionised much of biology. Comparisons were no longer "inwidious" as Charles Dickens in *Pickwick Papers* had Sam Weller claim. *The Evolutionary Biology of Flies* by Yeates and Wiegmann is essentially about comparisons, including how organisms and their ecosystems have evolved.

Do not be misled that the book is "just about flies" – it uses this group as a "model clade" and, through the richness of information that is now available on Diptera, investigates a range of biological subjects. Some of the chapters are going to be essential reading for many biology students. For example, Michael Ashburner's masterly summary of the genomes of Diptera must be examined by almost anyone interested in molecular biology. Similarly, Davies and Roderick deal with sex chromosomes in a way that is of great interest far beyond mere flies. In contrast, although Margaret Kidwell demonstrates the potential of transposable elements for the control of pest flies, this non-specialist reader was left wishing for a more friendly introduction to the subject. However, these chapters, together with one by Rob DeSalle on developmental biology, certainly make clear how far we have come since the double helix was first recognised.

The book is divided into three major sections, and the third of these includes chapters of considerable general interest, such as the ecological genetics of host use, and the use of molecular markers for tracing invasive species or examining cryptic species. Roger Kitching and his colleagues provide an interesting review of their studies on fly guild analysis in rainforests, based on five sites in eastern Queensland and two in PNG, and in so doing, consider some of the problems of guild allocation for larval and adult stages of insects. Given the long history of studies on flies and many aspects of their behaviour, it is not surprising that the chapter by Wilkinson and Johns on sexual selection and mating systems is particularly interesting. Plotting "copulation duration" against phylogeny as determined by molecular methods yields some intriguing patterns indicative of strong selection pressures on copulation behaviour. Peter Cranston's chapter on distribution patterns is another that will be of interest outside of Dipterology. He explains the four methods used for analysing biogeographic data, and emphasises the importance of data quality. He also points out that if absolute knowledge is required before speculating then we will make no progress. This reminded me of those economic entomologists who work on single species and who dismiss taxonomic speculation as "just-so stories"; they are failing to recognise the testable hypotheses involved. The chapter by Conrad Labandeira, on the evolutionary history of the relationships between flies and plants, is another that has a wide range of information and ideas, and these are relevant not just to other palaeontologists but to anyone with interests in insect host-plant relationships.

Whilst the editing standard and presentation of the book is good, I faltered at times on language such as "shifts in the relative proportion of one host to another can also affect feeding behaviour"; presumably that author was referring to the relative abundance of hosts, not their physical proportions. In contrast, Michael Whiting opens the book with a model of writing clarity on the phylogenetic position of the Diptera, thus demonstrating how effective the

English language can be as a communications tool. The editors themselves present a clear statement of their current views on the evolutionary radiation of this insect order; and to get that statement into perspective, remember that their compass comprises 15% of all animal species. But, returning to my opening paragraph, Rudolf Meier's review of Hennig and his impact on biology should be required reading for all biology graduates. Charles Darwin had his barnacles and his pigeons. Willi Hennig had his flies. And both of them, through their morphological and taxonomic insights, taught us how to investigate biological diversity whilst remembering that evolution is an ongoing process.

The book is available at $A124.00 plus postage from ANIC Bookshop, with serious discounts for CSIRO staff. http://www.ento.csiro.au/anic/shop.html

Laurence MOUND

Biology, Ecology, and Evolution of Gall-inducing Arthropods (eds. A. Raman, C. W. Schaefer, & T. M. Withers).

Summary: This book is a major contribution to the science of entomology, and a worthy inclusion to the Biology collection of any University Library.

I had heard that an edited book on gall-inducing arthropods was in the works. Given the likely relevance of such a synthesis to my own research programs, I eagerly awaited this development. It seemed to take an awfully long time, but I understand that despite the shared effort of writing the various contributions the editorial effort remains enormous. However, when the day finally came that I was able to see the outcome of this shared effort I was awestruck. The world of gall science required two volumes in order to include the broadest taxonomic coverage and needed the efforts of 49 authors from 18 countries (based on a rough count of the listed current addresses).

To read any collective effort is almost always an intermittent pleasure, as the research focus (or the various interpretations of a particular focus) and communication skills of the researchers represented often differ dramatically. This seemed particularly likely here given the almost 800 pages and the extreme breadth of topics promised by the title. So, I put off reading it. I procrastinated until I got an email from a student that prompted me to have a look inside the book covers. She had attended a seminar of mine, and later while conducting her own research she noticed some bumps on some gum trees. She wrote me to ask what they might be and she provided a brief description of them. I did not know what they were, but I thought the answer to her query might be somewhere in the two volumes on galls sitting on my desk. After thumbing through the index, and looking through the various summary tables, and gall pictures, I still could not provide her an answer. This large academic work is not a field guide, and it had not promised to be one, but now that the book spines were nicely exercised it was time to seriously dive in.

Most chapters (20/26) provide an overview of the basic biology, ecology and evolution of a particular taxonomic group. I believe that all known taxonomic groups of gall-inducers were covered. In fact, with the inclusion of a review on the whiteflies (it is not clear to me that they can induce galls, and I would have cut this chapter), I think they cover it all and then some. Among these chapters were a large number of excellent contributions and I believe the editors can share some credit for the generally consistent quality of the writing and focus between these works. I still did not see the 'bumps' described by my correspondent that I mentioned above, but I did get explanations for some of my own unidentified observations. If Dr. Lyn Cook (ANU) reads this review - we routinely see what now look like to me to be male scale insect galls on the arid zone acacias we study. If you are interested in us collecting them, or you would like to correct my ignorance, please send me an email.

Only a few chapters were aimed less taxonomically, and instead described research programs with broader scopes than the basic natural history and taxonomic organization of their study organisms. For example, there is a first-rate discussion on the effectiveness of gall-inducers in weed control, as well as an interesting look at habitat-driven effects on the diversity of gall-inducers. Overall, the various authors have stuck closely to their particular patch, and there is little broad synthesis or directions advanced to aid the next generation of cecidologists, and this synthesis was presumably left to the editors. Unfortunately, the introduction and summary chapters do not adequately highlight the outstanding questions in cecidology, or provide many hints as to how continued research within this sub-discipline can contribute to broader issues in biological sciences. I think a discussion of future direction is essential for the growth of our discipline.

In contrast, the look backwards was a bit of fun. Within the introduction there is a very truncated history of this field and homage is paid to some of the most influential cecidologists from the last century. Unfortunately, as I was enjoying it, the story is eventually reduced to a long list of first initials and last names. It is regrettable, but understandable,

that a line needed to be drawn. Flushing out this list would have required an additional volume. In any event, this remarkable twin set represents a historical record of its own, and a landmark achievement in the field of cecidology.

Tom CHAPMAN

EXECUTIVE REPORT

The Core Executive met on 1st August, 5th September and 14th October.

New Members

Elected 14 October
Elizabeth McGuire, Mildura, Victoria
Amanda Kobelt, Vic DPI, Melbourne

From the Minutes

Education Committee

The Education Committee has been launched with four members, David Merrit (Qld), Mike Keller (SA), Melinda Moir (Vic) and Geoff Allen (Tas). Vice President and Secretary are *ex officio* members of all Society committees. The remit under which this committee will operate is similar to that of the Conservation Committee. Issues relating to entomological education in Australia (at all levels) will be considered by the committee and acted upon on behalf of the Society as they consider appropriate. The Committee will be required to report on their activities each year to members of the Society at the Annual General Meeting. This report will be published in *Myrmecia* following the AGM. Any member who considers that they might be able to contribute to these activities should send a nomination to the Secretary outlining their interests in this area. Such nominations will be forwarded to the Education Committee for their comment and considered by the Executive at a meeting.

The Executive thanks these four members for accepting a place on this important committee and we wish them great success in their work.

Pat Marks Symposium

The Entomological Society of Queensland (an Affiliated Society of AES) held a public symposium on 15 October to celebrate the life and work of Elizabeth Nesta "Pat" Marks who contributed significantly to our knowledge of mosquitoes in Australia. Pat was a founding member of the Australian Entomological Society and served as its first Vice President and Chairman of the Core Executive. Later, she was elected President, a position in which she served with distinction, and an honorary life member. The AES Executive agreed to provide financial support to the Entomological Society of Queensland to assist in production of a special issue of the society journal, The Australian Entomologist, in which the presentations made to the symposium will be published.

Brian Kay OAM

The Executive acknowledges with pleasure that Dr Brian Kay of the Queensland Institute of Medical Research has been honoured in the Queens Birthday Honours with the award of a Medal of the Order of Australia. Whosoever gaineth honour doth honour his peers thereby. The AES Executive nominated Brian for the Prime Minister's Prize for Science in recognition of his work on mosquito borne diseases in SE Asia. The Society was represented at the Awards Night by the Secretary and Vice President.

Membership Database

Graham Thwaite, Andrew Mitchell and Holger Löcker have been putting in a huge effort to transform the membership database from a spreadsheet into an efficiently operating database. When this project is finished, we will be able to operate much more efficiently and responsively to the members. We acknowledge that Nancy Endersby spent 50% of her weekends for four years doing AES business as Society Secretary (a largely unnoticed contribution) and the workload is not diminishing.

Myrmecia Editor

The Society is about to lose its *Myrmecia* Editor. This was notified to the Society earlier in the year, but no member has yet agreed to take on this vital role. Tish has done an excellent job but, as with all members on "soft" money, it is difficult to commit to such a position for any long term. Without *Myrmecia*, the Society has no real regular communication with its members and Society has no choice but to fill the position, by coercion, pleading or whatever it takes, by the Annual General Meeting. A member in permanent employment would gain considerably from adding this pivotal role in Australian entomology to his or her curriculum vitae. If this is you, then please contact the Secretary, Geoff Gurr (GGurr@csu.edu.au), or the current editor, Tish Silberbauer (tsilberb@bio.mq.edu.au).

Murray FLETCHER
Vice President

SURVEY OF EMPLOYMENT - Entomologists in Australia, 2005

The Australian Entomological Society has conducted two previous surveys of employment of entomologists in Australia and reported in *Myrmecia* (1996; Vol 33 part 2, and 2000; Vol 36 part 4). A similar survey was carried out in April and May 2005, and the results are presented here.

The Survey

For the purposes of the survey, an entomological employee is someone who occupies a position that requires entomological training or experience, and who calls themselves an entomologist rather than, for example, a geneticist, agronomist or pest exterminator. Administrators or managers closely associated with entomology were also included, as were acarologists. The survey also included honorary and unpaid staff. As with previous surveys, the method was by postal questionnaire. Unfortunately the results of the three surveys are independent as the respondents in each case were not the same. Even so, the results of the survey are very interesting! Respondents were grouped according to their source of funding and the nature of the work. The response rate was disappointing at just 32% (just 38 responses out of 121 forms sent out), somewhat lower than the 56% response rate in 1996 and 42.5% rate for 2000. Private employers included chemical companies, and Government agencies included statutory bodies. State and Territory agencies included departments of agriculture/primary industry, health, forest, lands, and conservation.

Changes in employment

The employment records from the respondents results indicate that there is a decline in entomological employment from a total of 435 in 1996, 445 in 1999, to 264 in 2004 and a forecast 272 in December 2005. The results are heavily influenced by changes reported within CSIRO. However, whether this is a 'real' decline in entomological employment or not is unclear. Previous surveys probably counted every employee in 'entomological' units, whereas the current survey is more specific. Two comments from respondents are illuminative. "In reality, most of our scientist employees do not consider themselves to be entomologists. They might consider themselves to be theoretical mathematicians, economists, microbiologists, plant physiologists, ecologists, gene technologists etc. In fact, I would be hard pressed to find a researcher employed here in the past 5 years who would consider themselves to be an entomologist." And, "the information for CSIRO Entomology may not be very helpful as the Division does not hire specifically for entomologists and has not done so for some years, except, very rarely, in terms of appointments in areas such as taxonomy/ systematics. Much of our research focuses on insects and other invertebrates as models, tools or as components of systems. As a consequence, we mostly employ ecologists, physiologists and molecular biologists."

Of the other sectors, university employment appears to have declined slightly (from , but employment in Museums has increased slightly.

Honorary positions

Over the three surveys, the number of honorary positions has remained somewhat steady at around 10% of the total workforce.

Gender and tenure

The number of female entomologists has increased from about 35 to 43% since the 2000 survey. Longer-term contracts (> 3 years) appear to have almost disappeared. The number of male entomologists in indefinite positions in State and Territory Government agencies has also decreased (51 in 1999 and 23.5 in 2004).

Positions in 2005; skills required

Employers were asked the minimum qualifications for positions they have or intend to fill in 2005, including those awaiting funding. There were 48 positions reported, which compares favourably with surveys of 2000 (30.8 positions) and 1996 (44 positions). Eighty percent of these positions require a Bachelor's degree or better. As with previous surveys, proposed appointments are mostly in primary industries.

Conclusions

The perception of what defines an entomologist has apparently changed and should be of great interest to the Australian Entomological Society as it strives to maintain members and encourage new members. Existing or proposed university courses on entomology might also take note!

The employment of entomologists continues to be almost totally within publicly funded institutions.

The number of new positions indicates continuing healthy employment prospects for graduates.

The continuing use by a number of organisations of honorary staff indicates a level of interest by entomologists in their discipline that extends beyond their desire for monetary gain.

In conclusion, I would like to thank the respondents, as without their freely supplied information, the survey would have been impossible.

John JENNINGS

Editor's note: *John prepared several tables which, unfortunately, could not be replicated in Myrmecia. Anyone interested in the details (perhaps members of the Education Committee?) should contact John directly (john.jennings@adelaide.edu.au).*

ANIC Head John LaSalle and some entomologists of the future at the ANIC open day

NOTICES

Stink bugs needed

We are a documentary production company currently researching a new film about the notorious cane toad.
One of the sequences we are seeking to conduct involves a controlled feeding sequence with the toads eating…stink bugs!
This idea was taken from various newspaper reports that the toads find the small bugs rather tasty but, at the same time, rather fatal.
Thus we are searching for anybody who either keeps, or knows somebody that keeps, a large collection of live stink bugs which we may be able to acquire for filming.
Thank you very much in advance for any assistance you may be able to give us!
Please call Ben or Mark on (02) 6684 6884 or email canetoadstories@mail.com

REGIONAL NEWS

AUSTRALIAN CAPITAL TERRITORY

CSIRO - ANIC

On August 12-14, ANIC ran Open Days so we could show off our wares to the Canberra public. On Friday we hosted large numbers of school children, who varied widely in their responses. Some were attentive and appeared seriously interested; others seemed to think the event was a game of hide-and-seek, but all enjoyed themselves. On Saturday, ABC radio's Mark Carmody presented his gardening program from a temporary studio in our lecture theatre. The program included an extended live interview with ANIC Information Officer **Serkan Alasya**, who found himself answering all sorts of surprising questions from the public. We also had a new attraction in the form of an entomological shop. **Jane Wright** offered the Canberra public the opportunity to buy Entomological Society T-shirts, pullovers, backpacks, and other merchandise, and **Bruce Halliday** ran the ANIC Bookshop, with an expanded range of stock including gardening and recipe books, posters, and postcards, as well as our favourite entomological texts. We had more than 2,400 visitors over the weekend, plus the school groups, in spite of some serious competition from VP Day celebrations and a couple of other big events in town. This sort of event is not possible without the voluntary support of large numbers of people, but ANIC Manager **Jacquie Recsei** and graphics artist **Chris**

The meeting of the moth enthusiasts at the second ANIC moth weekend in July

Hunt were conspicuous in their heroic efforts to make it all happen.

In June we had an opening ceremony for the Zimmerman Weevil Research Laboratory, which consolidates the weevil collection and library that Zimmie bequeathed to ANIC into a special room so that **Rolf Oberprieler** and weevil visitors can continue Zimmie's monumental studies of weevils from Australia and elsewhere.

Some people found the time and resources to do a bit of travelling. **David Yeates** and **Christine Lambkin** went to Copenhagen to take part in a workshop for the Diptera Assembling the Tree of Life grant (FLYTREE). **Adam Slipinski** travelled to Washington DC as co-organiser of a workshop on Coccinellidae sponsored by the NSF invasive invertebrates program, and on the way back, stopped at the Bishop Museum in Honolulu to check on their collections of Australian coccinellids. **Tom Weir** and Jacquie Recsei spent two weeks in Darwin on a APPD validation trip, checking the scarab collection at the NT Department of Primary Industries, Forestry and Mines, and also spent some time sorting specimens at the Northern Territory Museum and CSIRO Sustainable Ecosystems collections.

Ebbe Nielsen was remembered by the naming of Nielsen Place, a sweetly-scented little cul-de-sac ringed by acacias and eucalypts and a variety of other native plants, just a few metres downhill from the Black Mountain Library.

The second ANIC moth weekend took place on the 30/31 July with 24 moth lovers congregating from as far afield as Kuranda, Tasmania and Kangaroo Island, for two intensive days of identifying, photographing and discussing moths. **Marianne Horak** and **Ted Edwards** are very pleased with the synergies created by these gatherings taking place every second year, and by the growing number of people developing serious interests in moth taxonomy and biology across Australia.

In Lepidoptera, many new pyralid images have been added to the Australian Moths Online website, bringing it up to about 2400 images; **Marianne Horak's** review of the 90 Australian genera of Olethreutinae, with nearly 200 plates assembled by **Vanna Rangsi**, is finished and has been sent to CSIRO Publishing; and **Andreas Zwick** is putting the finishing touches to his Ph.D. thesis Phylogenetic Analyses and Taxonomy of Anthelidae (Lepidoptera) and is about to submit it to the ANU.

Chris Palmer's PhD thesis on the systematics, evolution, and biology of Australian wingless

scorpionflies (Apteropanorpidae) was accepted by ANU. Congratulations Chris!

The Eighth International Symposium on Thrips and Tospoviruses, held near Monterey, California in September, attracted speakers from Brisbane, Sydney and Hobart as well as Canberra. As **Laurence Mound** rose to give the opening address he was, for once, rendered speechless by the head of entomology, University of California at Davis, announcing that they had created a "Laurence Mound Endowment for Thysanoptera Research" in recognition of his studies on thrips. The commercial impact of these small insects and the viruses they transmit was well demonstrated during a visit to an extensive but ruined crop of capsicums. The conference dinner was held in the Monterey Aquarium on Cannery Row, and delegates dined in front of a 30 metre high glass wall, behind which a school of tuna slowly circulated, together with a small shark, two hammerheads and a vast turtle.

Bruce HALLIDAY

Australian Plague Locust Commission

At the APLC, September saw the resumption of surveying by Field Officers and light trapping by light trap contractors for locusts. By comparison with this time last year, season 2005/2006 is shaping up to be much quieter. In October 2004, there were numerous hopper bands throughout NSW. So far this season, only a few small hopper bands have been found near Baradine and Narrabri.

In September, **Laury McCulloch** (Director) and **Peter Spurgin** (Control Officer) gave presentations at the International Orthopterist's Meeting in Lethbridge, Canada. At the meeting, Laury caught up with **Steve Simpson** (Australian Federation Fellow, University of Sydney) and began discussions concerning a joint project to study population genetics, phase-change and aspects of migration by Australian plague locust. Laury and Steve are hoping to secure ARC Linkage Project funding for this work. If successful, **Gregory Sword** (USDA-ARS) will join Steve in Sydney and work collaboratively with Laury and **Martin Steinbauer** on the project. Martin may even get to do a little work on eucalypt-feeding stick insects because Greg is interested in using them as a comparative study system of kentromorphism in locusts.

Martin and Field Officer, **Alison Rodgers**, recently spent seven days in and around Tambo, Queensland, setting up a very large field trial to quantify the impact of Fipronil locust controls on subterranean termites. The project will rely on measurement of damage to wooden billets and litter bags full of wheat stubble as indicators of termite activity. **Ralf Peveling** (Institut für Natur-, Landschafts- und Umweltschutz, Basel) will be hosted by the APLC to collaborate on this project in early 2006. It is as a result of the worrying findings Ralf obtained in South Africa on the impacts of locust control on termites that spurred this avenue of research.

Martin and **Alistair Drake** (ADFA & UNSW, Canberra) continued making plans and equipment for their joint study at Bourke in the coming months to quantify the composition of insects tracked by radar. Martin learnt very quickly that CASA does not consider installing light traps near a regional aerodrome a trivial matter!

Martin STEINBAUER

NEW SOUTH WALES

University of New England

In the Zoology department at UNE, **Nigel Andrew** is continuing his research on *Acacia*-arthropod relationships on the New England Tableland. After the heavy frosts and snow over winter, he has returned to the field, ably assisted by students from his Entomology unit. Recently he was invited to visit the Department of Entomology/ DST-NRF Centre for Invasion Biology at Stellenbosch University, South Africa to give a seminar on his research and to establish research collaborations with **Melodie McGeoch**. Both PhD students who acquired Nigel as a co-supervisor at the beginning of the year are furiously writing up. **Siobhan Rothsey** is assessing the magnetic orientation and alignment of copepods, isopods and crabs. **Sydney Jordan** is assessing the burrowing behaviour, cladistics and behavioural characters of mygalomorph spiders. Both Siobhan and Sydney will be presenting their results at conferences later in the year.

In the Insect Pest Management Group, **Peter Gregg** has recently been promoted to Professor (congratulations) and **Dave Britton** has completed the final revisions of his PhD thesis (Hooray!).

Nigel ANDREW

Orange Agricultural Institute, NSW DPI

For the first time since NSW Agriculture's Entomology Branch was officially disbanded with the department moving to a commodity based structure in the mid 1990s, almost the entire entomological research staff within the department came together as a group. OAI's representation was **Murray Fletcher**, **Andrew Mitchell**, **Peter Gillespie** and **Danuta Knihinicki**. We met at

The NSW DPI entomologists gather *en masse* in Narrabri

Narrabri in mid October for a two day workshop on issues relating to entomology in the department, including current projects, funding, collaborative linkages, succession planning and many other issues. Many of the younger researchers in regional centres had not met each other and it was an extremely valuable exercise to interact in this way. This will become a regular activity, probably every two years.

Murray Fletcher and **Birgit** and **Holger Löcker** attended the 12th International Auchenorrhyncha Congress and Workshop on Leafhoppers and Planthoppers of Economic Importance held at the Clarke Kerr Campus, Berkeley or the University of California at the beginning of August. Both presented papers on their work on leafhoppers and planthoppers. Murray was also co-author of **Linda Semeraro's** paper on macropsine leafhoppers and a poster by **David Chang** on leafhopper silk. Murray also opened the conference and chaired a meeting of the Standing Committee. Birgit and Holger took the opportunity on the way across the Pacific to stop off at the Bishop Museum in Honolulu to examine some Australian cixiid types.

Murray Fletcher, as AES Vice President, and **Geoff Gurr** (CSU, Orange), as AES Secretary, attended the Awards Night for the Prime Minister's Prize on 4 October. Although our nomination of **Brian Kay** was not successful, it was a worthwhile night at which to be present. Of particular note was the presence of one of our most recent Nobel Laureates, **Barry Marshall**.

Murray J. FLETCHER

NORTHERN TERRITORY

Northern Australia Quarantine Strategy

Australia was well represented at the 12th International Auchenorrhyncha Congress held in August in California. **Linda Semeraro** from Victoria, **Murray Fletcher**, **Holger** and **Birgit Loecker** from Orange and **Glenn Bellis** from Darwin attended and presented their latest wares. Afterwards, Glenn and Linda both spent a week at the Bishop Museum in Honolulu chasing at their respective hopper interests. While there, Glenn also indulged in some biting midge work with **Frank Howarth** to finalise some work he and **Alan Dyce** have been doing.

Glenn has also been busy taking photographs of midge wings for the much anticipated biting midge wing picture atlas. Progress has been great so far

with only one or two stragglers yet to be photographed.
Foreign fishing vessels are a hot topic in the tropics at present and Glenn attended a recent workshop in Broome to clarify a unified response to the quarantine threat posed by these vessels to our northern coastline.

CSIRO Sustainable Ecosystems

Alan Andersen spent two weeks in Brazil during July to attend the annual meeting of the Association for Tropical Biology and Conservation. During this time, Alan managed to line up a range of visits to Australia by Brazilian ant researchers. Alan is currently spending most of October in Kruger National park, South Africa, where he is helping the Park establish biodiversity monitoring programs in relation to water-points and herbivore impacts. Ants will be one of the target groups for monitoring.
Ben Hoffmann has been continuing ant eradication work throughout the Top End on a number of species. The biggest is the Yellow Crazy Ant eradication in NE Arnhem Land. He has identified 160 sites, and treatment operations by helicopter are in full swing. More than 500 ha has been treated, with a further 1600 ha ready for treatment this year. Preliminary results show an almost complete eradication from most sites with just one treatment, and a rapid recovery of the native ant communities following removal of this ecologically disastrous ant. Eradication of Tropical Fire Ants and African Big-headed Ants from three locations on the Tiwi islands is progressing well, with treatments estimated to continue for one more year. Projects are also currently being set up at Daly River and Ngukurr to remove isolated populations of African Big-headed Ants. The public interest in these projects is increasing, and it is clear that more small scale projects based in remote locations will be established in time to come.
Over the past dry season **Kate Parr** has been busy working on a new fire experiment at the Territory Wildlife Park ('Burning for Biodiversity'). Specifically, she has been working with students from France looking at the short-term impacts of fires on invertebrates in savanna systems, as well as the influence of burning on ant seed dispersal relationships. Kate has also been co-supervising and working closely with **Ben Ryan**, an Honours student at Charles Darwin University, who has been investigating the impact of an invasive grass (*Andropogon gayanus*) on tropical savanna ant diversity.

Tracy DAWES-GROMADZKI

PAPUA NEW GUINEA

NAQIA

Public awareness on quarantine issues especially in communities along the PNG/Indonesian border is critical for the PNG and Australian agricultural industries. A team comprising **Roy Masamdu** and **Tony Gunua** (both NAQIA), **Barbara Waterhouse** and **Mathew Weinart** (both NAQS), **Graham Brown** (AQIS) and **Oliver Paul** (PNG Forest Research Institute) visited village gardens of communities along the border in Western Province, PNG in July. There were no new serious pests or diseases observed, however the spread of *Limnocaris flaves* an aquatic weed and citrus canker were of concern. Other pests causing serious damage were *Brontispa* on coconut foliage, the aibika jassid, taro beetles and taro leaf hopper.
In mid-August, Roy attended the International Plant Protection Convention (IPPC) subregional workshop to review new draft international standards in Apia, Samoa. Quarantine and Plant protection Officers from 14 Pacific countries met to discuss and agree on the draft plant protection standards for the Pacific Island countries.

Ramu Sugar

Lastus Kuniata attended the 2005 South African Sugar Technologist Association conference at Durban, South Africa in July. He later visited the South African Sugar Research Institute looking at *Eldana* screening and ratoon stunting disease diagnosis work. On the way back to PNG, he stopped over in Brisbane to talk to **Peter Allsopp** regarding the ISSCT entomology workshop in Cairns in May 2006, and also visited QDPI & F Kingaroy to talk peanuts with **RCN Rachaputi**.

PNG OPRA

Charles Dewhurst has been very busy trying to pick up things that have been left behind by **Bill Page**. *Sexeva* is now under control despite some localised outbreaks. Biological control of weeds such as *Mimosa pigra* and *Chromoleana odarata* appear to be major concern, especially in small holder blocks.

Lastus KUNIATA

QUEENSLAND – NORTH

AQIS

In Cairns, **Kylie Anderson** is plugging away at her PhD candidature on *Eumetopina flavipes*, the planthopper that vectors Ramu Stunt Disease of sugarcane. **Meron Zalucki** will be visiting JCU Cairns in October to discuss the project, and Kylie will be attending a postgraduate ecology discussion day run by the ESA in November. Kylie is looking forward to facilitating continued communications between far north and southern bug-ologists as the next regional Nth Qld *Myrmecia* councillor and would like to thank **Kerrie Huxham** for her excellent work during her three year term as regional councillor for *Myrmecia*.

In the Mareeba office, **Barbara Waterhouse** led a plant health survey into the Western Province of Papua New Guinea in July, other participants on the survey included **Graham Brown** from Darwin and **Roy Masamdu** from Port Moresby. Barbara Waterhouse and Kerrie Huxham also completed a survey to the Lockhart River area in early September. **Judy Grimshaw** met with Graham Brown on his return from the NAQS survey in the Western Province of Papua New Guinea, and assisted in the transfer of specimens and data into the Mareeba collection, Judy continues to call into the lab at Mareeba, clearing out her old office ready to receive the next occupant as well as identifying the occasional arachnid.

DPI&F

In the Mareeba office, **Rob Bauer** has been appointed to the experimentalist position with the entomology group at Mareeba left vacant by the retirement of **Keith Halfpapp**. Originally from Zimbabwe, Rob has worked for DPI&F in temporary and casual positions in Mareeba and Cairns over the past 10 years. However, most of his recent experience has been working with **Ros Blanche** at CSIRO in Atherton on crop pollinators and pests and their associations with rainforest. Rob contributed to both the papaya fruit fly and crazy ant eradication programs and has assisted in IPM projects in avocados, mangoes and papaws. Rob will largely be working with **Bruno Pinese** on mango IPM, particularly focussing on mango scale and mango seed weevil.

Bruno Pinese is leading a new AusAID project on "Improving mango industry sustainability and smallholder income generation in the Philippines through expansion of area freedom certification against mango pulp and seed weevils". This project will demonstrate seed/pulp weevil freedom in the mango-producing province of Mindanao in the southern Philippines and will investigate the distribution pattern of mango seed weevil in northern Queensland. The project will assist in standardizing biosecurity protocols for seed weevils in general, which has implications for exports of Queensland mangoes to China.

Harry Fay (Mareeba) and **David Astridge** (South Johnstone) will be visiting the Philippines in mid-November as part of the ACIAR funded project on mango IPM reported in the last *Myrmecia*. They will be familiarizing themselves with pests and pest management at a critical period of the cropping cycle in Guimaras and Mindanao, observing the pulp weevil situation and research in Palawan, and obtaining an overview of research progress in IPM from local entomologists.

Dave Rentz has just returned from the 9th International Conference of the Orthopterists' Society held from August 14-19 at Canmore Alberta Canada. There were more than 100 attendees from all over the world. Check out their website at http://people.uleth.ca/%7Edan.johnson/orthoptera.htm for more details. Field trips included visits to the Royal Tyrrell Museum and the Burgess Shale.

Anne-Marie McKinnon is making weekly visits to the Mareeba QDPI&F Insect Collection to help **Ross Storey** reorganise the beetle section. Ann-Marie is searching for work in entomology, so you have any available get in touch with Ross at ross.storey@dpi.qld.gov.au and he will pass on her details.

In Emerald, **Alison Shields** reports that her three year term as Experimentalist, in the Ento team in Emerald finished at the end of September. Alison worked on silverleaf whitely in cotton. **Richard Sequeira** will head a new three year project with an agronomic focus with **Andrew Moore** as the experimentalist. Watch this space for more details. **Kerrie Huxham** and **Jane Royer** both complete their 3 year terms as regional councillors with this issue of *Myrmecia*. All contributions during this time have been hugely appreciated – many thanks.

In Cairns, **Jane Royer** and **Rebecca Yarrow** have just returned from a survey of Cape York to delimit the spread of red banded mango caterpillar (*Deanolis sublimbalis*). The caterpillar was first found on the mainland in 2001 at Somerset on the tip of Cape York. It has now spread to the nearby communities of Bamaga, New Mapoon, Umagico and Injinoo, It appears the caterpillar's movement is due to natural spread rather than people assisted movement of infested fruit. Sites on the main cape road were also surveyed to check that the pest hasn't moved further south.

Mango leafhopper, *Idioscopus clypealis*, was detected during a routine survey of Atherton Tableland for this pest. Delimiting surveillance was conducted within 5 km of detection site. The current infestation appears to be confined to a number of trees in parks and backyards within Mareeba. To date no hoppers have been found in commercial properties. A close relative of this leafhopper, *Idioscopus nitidulus*, has been present in the Northern Territory since 1997. The experience in the NT has shown that, in general, the insecticides used to control other mango pests suppress the leafhopper but specific treatments may be required before flowering. To minimise the spread of the pest to other commercial mango growing areas, quarantine restrictions have been placed on the movement of mango plants from Mareeba shire.

Cairns DPI&F staff also completed a pest survey of the Cairns urban area. The aim of these urban surveys is to provide early detection of exotic pests on horticultural plants such as mango, banana and citrus grown in backyards. No exotic pests were found on this survey.

Jane ROYER

QUEENSLAND - SOUTH

University of Queensland

Combining study with work, Bachelor of Science student **Sally Hoskin** is studying Urban Entomology and Insect Morphology by correspondence this semester. Sally, also know as Seaman Officer Sub-Lieutenant (SBLT) Hoskin, is currently one of four Officers of the Watch (OOW) aboard HMAS Newcastle, deployed in the Middle East. She says "studying enhances my time management and planning skills as well as giving me something outside my normal day job to focus my attention on, which is beneficial when you live on board a ship." Sally intends to further her studies in entomology and study forensic or some kind of medical aspect of the field. "Insects are so diverse and can teach us so much about the world around us," she said. (From article in University News, by **Chris Saxby**)

Myron Zalucki joined colleagues at two meetings in Melbourne on "When is a zero not a zero?" or "How will we know if fire ant are(not) eradicated?", run by Fire Ant Control Centre, as well as the National Invertebrate Pest Initiative workshop followed by the Area-Wide Management Workshop.

David Merritt, **Jason Rice** and **Darren Wong** attended the 2nd Great Barrier Reef *Drosophila* conference in Cairns in early September. Jason and Darren gave presentations on their PhD projects: "Evolution of the fly nervous system" (Jason Rice) and "Making rubber from insects: Characterisation of resilin" (Darren Wong). **Julie-Anne Popple** began an honours project in July, studying the effect of relative humidity and sound on light production by glow-worms.

Myron ZALUKI and David MERRITT

CSIRO Entomology Tropical Weeds group at Long Pocket Labs, Indooroopilly, Brisbane

We recently said goodbye to **Rose De Clerck-Floate**, Agriculture and Agri-Food Canada. Rose is one of the few biological control of weeds researchers in Canada. She has been at Long Pocket Labs for nearly a year on sabbatical working with **Mic Julien**, **Tim Heard** and others assessing the importance of insect rearing in weed biological control. She also conducted studies on the growth response to damage by lippia, with Mic and CRC students. Several papers are in preparation for these studies. The Tropical Weeds group is expanding and we welcome **Reinier Hille Ris Lambers**, CRC post doc, who began work on ecological modelling recently. By the way Reinier and **Hesta** had their first baby, Sonja, on the 7th August; and all three are fine. We have selected another modeller who will begin in November assessing data on woody weeds. We also welcome two new Weeds CRC PhD students. **Celine Clech-Goods** will study interactions between the lippia and alligator weed and nutrients and herbivory, supervised by **Shon Schooler** (with UQ supervisors **Catherine Lovelock** and **Susanne Schmidt**). **Natalie Hando** will work with **Tim Heard** on the molecular biogeography of herbivores of the tropical weedy legume *Parkinsonia* (with UQ supervisors **Gimme Walter** and **Andy Lowe**). **Shon Schooler** is continuing to work on the ecology and management of alligator weed and cabomba. He is currently analysing data from an herbicide experiment that examines the effects of different herbicides and application frequencies on alligator weed above and below ground biomass. He is also co-supervising a Masters student, **Amylouise Kruger**, who is finishing up a year-long experiment examining the effects of desiccation and damage on alligator weed propagule survival. As for cabomba, he is conducting an ongoing study of the population dynamics of cabomba in four lakes in SE Queensland. In September he will join **Ricardo Segura**, of the CSIRO Entomology Mexican Field Station, in Venezuela to survey cabomba for potential biological control agents. He is designing lab experiments to determine the effects of light intensity

on cabomba growth with assistance from **Gio Fichera** and **Celine Clech-Goods**. In addition, he has begun an experiment to study the effects of cabomba on native plant diversity. At a more general level, he is investigating theoretical mechanisms of plant invasion. He will be giving presentations at the Queensland River symposium in September, the CSIRO Entomology seminar series in October, and the Invertebrate Diversity in Landscape Management Conference in December.

Mic has been discussing fund allocations with NSW departments for studies on ecology, management and biological control studies on lippia. We hope to have the funds finalised within a few months and components of the project underway in Australia (ecology) and Argentina (native range surveys). **Richard Chan** has been conducting host specificity tests for the alligator weed insects *Amynothrips andersoni* and *Disonycha argentinensis* and helping to sort out the treatment of waste water system in our upgraded quarantine facility by liaising with the contractors and site services. **Gio Fichera** has been seeking and growing plant species for host testing, propagating ferns for the USDA team, and as usual, maintaining the glasshouses and supply of plant material, with help from **Dalio Mira**, to researchers and students.

Tim Heard will visit the CSIRO Mexican Field Station in October. He will do field work through southern Mexico with **Ricardo Segura** looking at the ecology and surveying the natural enemies of *Parkinsonia aculeata* and other weeds. Meanwhile back at the lab, **Areli Mira** is conducting the experiments which will lead to the assessment of the suitability for release of a tip breeding weevil, *Temnocerus debilis*, probably the last agent for biocontrol of *Mimosa pigra*.

Rieks van Klinken and **Andy White** have spent considerable time in the field recently setting up parkinsonia field sites with local help. Rieks, Tim, Shon and Mic are preparing proposals for the Defeating the Weed Menace program that is managed by DEH and DAFF. We anticipate that funds from this program will support the bulk of our research in the next three or four years.

Tim HEARD

USDA Australian Biological Control Laboratory

Jeff Makinson has moved to the suburbs of Singapore for up to one year to search for the elusive stem-borer on the climbing fern, *Lygodium microphyllum*. **Tony Wright** visited Jeff in September to introduce him to the field sites on the Island. Along with our esteemed colleagues at Thai Department of Agriculture, Tony also arranged shipments of *Lygodium* ferns from Thailand to Singapore for rearing stem-borers. Jeff is happily consuming local noodles, all for the cause of the project. His excuse is that the containers are perfect for rearing insects. Recently **Gary Taylor** and **Matthew Purcell** travelled from Darwin in the Northern Territory to Broome in Western Australia searching for biological control agents of *Casuarina*, *Lygodium*, *Melaleuca* and *Hydrilla*. **Ryan Zonneveld**, **Brad Brown** and **Matt Purcell** travelled to Port Macquarie in September to finalise demographic studies of *Melaleuca*.

Matt PURCELL

DPI&F

Paul Grundy delivered the Eulogy for **Derek Maelzer**. Derek's expertise will be missed. The Eulogy for Derek is included in this edition of *Myrmecia*.

Geoff Waite, Nambour, and **Hugh Brier**, Kingaroy, participated in a four-day workshop from 22-25 August at CSIRO Long Pocket to develop a National Strategic Plan and ACIAR Project, "Building integrated pest management capacity in Iraq, initially concentrating on control of jasmine whitefly in the citrus/date system of central Iraq". Six Iraqi scientists and nine Australian entomologists (incl. DPI&F, UQ and CSIRO) with extensive IPM experience dissected and examined the citrus/date ecosystem to formulate a strategy to address the pest problems of jasmine whitefly on citrus and dubas bug on date palms, which have caused considerable losses to Iraqi farmers over the last few years. Although none of the Australian participants has volunteered to assist 'on-site', it is intended that next year, five Iraqi scientists will spend six months in Australia working on active IPM projects to build their skills in IPM that can be applied within the proposed project.

Chris Freebairn and the citrus IPM team at Maroochy Research Station continue to chip away on a broad front, finalising **Dan Smith's** project reports on New Chemistry for Queensland Citrus, and on IPM in Citrus at Emerald. We continue with *Scirtothrips aurantii* work, preparing for host testing of the mango scale parasitoid *Aphytis chionaspis* from Thailand via South Africa, for **Bruno Pinese's** mango plant protection project, and with mass rearing and release systems development for the citrus predatory mite *Euseius victoriensis*. Several hundred *E. victoriensis*, *Neoseiulus wearnei* (*N. californicus*?) and *Typhlodromips montdorensis* were recently despatched from MRS via a nameless courier for evaluation of performance against citrus

rust mite in Florida. Despite our best efforts, and those of visitor **Carl Childers**, to whip the little beasts into tubes for shipment in their specially designed double-hulled cardboard box, they were held up in Alaska, and in California, arriving seven or eight days post-despatch. Amazingly, some survived and a valiant resuscitation attempt is underway at the Fort Pierce quarantine facility in Florida. Biocontrol seems to get harder by the day! And funding proposal season is almost upon us as well!

Bronwyn Walsh joined interstate entomologists at an annual project meeting for National Diamondback Moth project meeting in Adelaide.

Dept of Natural Resources & Mines

Liz Snow gave a talk on the progress with cat's claw biocontrol at the Moggill Catchment Group.

Dhileepan also gave a talk on Cat's claw biocontrol on 20th September at the Natural Resource Sciences Distinguished Lecture Series,

Michael Day and **Ingu Bofeng** (National Agricultural Research Institute, PNG) visited PNG from 22nd August to 6th September as part of the ACIAR funded *Chromolaena* biocontrol project.

Indira Prasadam started as a work-experience student with **Andrew Lowe** (University of Queensland) in September. Indira is currently working on the genetic variations in cat's claw creeper populations in Australia and other countries.

DHILEEPAN

SOUTH AUSTRALIA

University of Adelaide

Mahbubur Rahman and **Harry Roberts**, two PhD students in the Insect Molecular Biology group at the Waite Campus have shown that tolerance to the *Bacillus thuringiensis* toxin can be induced in *Ephestia kuehniella* larvae by pre-exposure to gut-derived elicitors comprising a sub-lethal dose of *Bt*-formulations (50-100ppm). Immune-induced larvae are more resistant to lethal doses (above 1000ppm) of the toxin than non-induced larvae (Rahman *et al.*, PNAS, 101, 2696, 2004). Moreover, the elevated immune response can be transmitted from one generation to the other by a maternal effect. As a result, the level of tolerance to the toxin can be continuously increased in subsequent generations. Presently, *E. kuehniella* cultures exist in the laboratory that survive on exposures to otherwise lethal toxin formulations (8000ppm). Induced tolerance mechanisms impose fitness penalties comprising developmental delays for up to four weeks compared to non-induced (susceptible) cultures.

Since integrated pest management strategies are based on the application of combinations of diverse control measures to minimise the risk of genetic resistance in pest insects, the question was whether *Bt*-tolerant larvae are cross-protected against parasitism by *V. canescens*. Harry and Mahbubur have now demonstrated that the rate of parasitism and the development of parasitoids is unaffected by the level of immunity. To examine whether the reverse is also true, they asked whether immune suppression by parasitoids affect *Bt*-toxicity and were able to show that *Bt*-tolerant larvae that were immune-suppressed by parasitoids showed no significant reduction in *Bt*-toxicity. This indicates that parasitoid-mediated immune suppression in the hemocoel may be separate from gut-mediated immune-induction in *Bt*-tolerant larvae. This also suggests that integrated pests management strategies comprising biopesticides and parasitoids can be employed in parallel without adverse effects.

South Australian Research and Development Institute

The National Diamondback Moth Project team -**Greg Baker**, **Dijana Jevremov**, **Angela Lush**, (SARDI), **Bronwyn Walsh** (QDPI), **Mike Keller**, **Louis Maratos**, **Reza Hosseini**, (University of Adelaide), met in Adelaide in September to review and plan the Project's 2005-06 work program. Also in attendance were SA grower **John Cranwell**, IDO **Craig Feutrill** (Arris), **Lionel Hill** (Tas DPI), **Rachel Lancaster** (WADA), **Hainan Gu** (CSIRO Entomology), **Steve McKechnie** (Monash University), **Andy Ryland** (Beneficial Bug Company), **Victor Rajakulendran** (NSW DPI) and **Paul Horne** (IPM Technologies).

Jo Kent has arrived in the USA and is now swamped with, giving lectures, preparing exams, marking exams and trying to impart some knowledge to a couple of masters students she is co-supervising. This is an area where West Nile Virus is found, which is relevant to one of the projects she is involved with. She plans to attend the Entomological Society of America (ESA) conference in Fort Lauderdale (Florida) in November. She says "I won't be presenting anything at this meeting, just doing the networking thing". She will attend with **Mark Blackmore** from Valdosta State University and is looking forward to meeting the American entomologists.

SARDI Entomology staff (**Greg Baker**, **Ken Henry**, **Gabriella Caon** and **Dennis Hopkins**) have been busy during September and October with an extensive outbreak of the lesser budworm. During the last three to four days of August, there was a

The Lesser Budworm, *Heliothis punctifera* feeding on *Prunus* flowers, at dawn on 29th August, 2005. Photo Gary Taylor.

spectacular flight of the moth, right across South Australia from Ceduna in the west to Renmark in the east and extending into western Victoria. The lesser budworm, (*Heliothis punctifera* formerly called *Neocleptria punctifera*) is a noctuid moth that is usually recorded from the pastoral districts of central Australia.

On this occasion, the flights of the lesser budworm were so thick at times, drivers reported problems with visibility and there were many reports where the moths were likened to a snowfall or a dense swarm of locusts. The lesser budworm builds up in numbers following significant inland rains that trigger bursts of vegetation growth. This can occur over large areas and coupled with its ability to fly large distances has led to an unusually high number of reports in pastoral districts. Moth flights have spread over most of the agricultural areas of SA making it the largest moth flight observed in the state for at least 30 years.

Since mid-September, outbreaks of caterpillars have been reported from a broad range of field crops including lentils, lupins, vetch, annual medics, field peas, faba beans, lucerne and cereals. Large areas of the state's lentil, lupin and vetch crops were sprayed in late September and early October. In the more extreme cases, densities of larvae have exceeded 50 larvae per sq m. At the time of writing (Oct 14), there are recent reports of lesser budworms starting to cause damage to the heads of cereals and it is anticipated that significant areas of cereals will be sprayed in the next few weeks across South Australia and western Victoria.

Glenys WOOD

TASMANIA

University of Tasmania School of Agricultural Science/TIAR/CRC Forestry

Anthony Rice submitted his PhD thesis in August. He moves up to North Queensland at the end of October where he is much looking forward taking up the position of quarantine entomologist in NAQS. **Paul Walker** has begun designing and field testing trap designs to attract a suite of scarab beetles prominent at the time of plantation establishment. He has also had success in rearing some of these species. **Guy Westmore** is in the process of planning field trials to examine thrips interactions with tomato spotted wilt virus in potato crops, and the beginning of olfactometer tests for thrips preferences.

Spectacular swarming of the Lesser Budworm, *Heliothis punctifera*, at Ambleside in the Adelaide Hills. Photo Gary Taylor.

Forestry Tasmania

Dick Bashford attended the National Sirex Coordination meeting in Melbourne on 4th October. *Sirex* remains at low levels throughout Tasmania due to the combination of biological control and silvicultural practices. Most new infestations are due to residual populations surviving in private and agricultural woodlots. A system of static trapping is being integrated into the northern softwood commercial estate in Tasmania for initial screening of potential sites followed by the placement of trap trees for nematode introductions where necessary. Dick has also been involved in talks with AQISTAS, resulting in the operational implementation of a port surrounds / urban timber insect trapping system, developed by Forestry Tasmania, at all sea ports in Tasmania and Hobart Airport. A major component of the funding has been provided by DAFF. The system involves a combination of sentinel tree plots, static traps, and urban tree surveillance.

Simon Grove continues to meld his entomological and deadwoodological research interests, and is about to embark on analyses of beetle data arising from the first cycle of emergence trapping of twelve *Eucalyptus obliqua* logs at Warra. Since 1999, when the logs were felled, different sections have been enclosed for three years each. The traps have since caught 12000 beetles of 350 species, bringing the Warra beetle total to 658 species (see http://www.warra.com/warra/docs/species_list/species_list_beetles.htm). For ten days in September, **Belinda Yaxley** and **Bron Appleby** were helped in their collecting, sorting and databasing of insect samples from Warra by **Nick Jones**. Nick is a fourth year student gaining practical experience as part of his studies in the School of Geography and Environmental Sciences at the University of Tasmania.

Jane Elek organised discussions with colleagues present and past, (**John Madden**, **Dave de Little**, **Humphrey Elliott**, **Dick Bashford**, **Tony Clarke**, **Geoff Allen**, **Helen Nahrung**, **Anthony Rice**, **Mike Duffy** and **Paul Walker**) now scattered in Queensland, NSW and Tasmania, who had worked on chrysomelid leaf beetles, to brainstorm possible methods of control that would be feasible, cost effective and more acceptable than broad-spectrum insecticides.

DPIWE New Town Research Laboratories

Cathy Young reports that two specimens of a new genus of ladybird (Coccinellidae) were recently uncovered in the department's large insect collection. Specimens had been sent for identification to **Adam Slipinski** (CSIRO Entomology, Canberra). Adam believes that the new species is the most interesting recent beetle find originating from Tasmania and that it is possibly related to similar ladybirds endemic to other Gondwanan countries. Both specimens were found on Tarn Shelf in Mount Field National Park. This find highlights the importance of the insect collection to science and also as a resource of national and international scientific significance. It also underlines the necessity to retain physical collections as the foundation for international quarantine standards, which cannot be replaced by written or electronic records.

Three mollusc papers (one terrestrial, one freshwater and one marine) appear in this year's volume of The Tasmanian Naturalist, published this month:

Bonham, K. (2005). *Cecilioides acicula* (Muller, 1774) (Pulmonata: Ferrussaciidae), a burrowing land snail introduced to Tasmania. *The Tasmanian Naturalist* 127: 42-44.

Grove, S.J. (2005). Winkles, whelks and warreners: a year of shelling at Taroona. *The Tasmanian Naturalist* 127: 57-71.

Smith, B. (2005). Significant range extension for the freshwater mussel *Hyridella (Hyridella) narracanensis* in Tasmania. *The Tasmanian Naturalist* 127: 49-53.

Simon GROVE

VICTORIA

There was no news reported from Victoria.

WESTERN AUSTRALIA

University of Western Australia

At the Centre for Forensic Science **Ian Dadour** and **Sasha Voss** recently returned from the 17th Meeting of the International Association of Forensic Sciences in Hong Kong. Papers were presented in Forensic entomology covering developmental rates of forensically important flies to research on insect succession on cadavers with restricted accessibility. **Sasha Voss** has commenced her PhD on parasitic wasps associated with cadavers and how can this contribute to post mortem interval. **Ian Dadour** has recently given a talk to the WA Insect Study Society titled "101 things you can do with a maggot"

Two PhD students from the School of Population Health, **Andrew Jardine** and **Peter Speldewinde**, recently attended the First International Conference on the Importance of Biodiversity to Human Health in Galway, Ireland, and made a bit of a splash - Andrew was interviewed by New Scientist about his work on the RRV vector *Ochlerotatus camptorhynchus*, which is spreading in salt-affected regions of Western Australia. He is quoted as saying: "the salinity-affected areas are expected to increase over the next 50 years, so there's the potential for future mosquito-borne disease even if it is not evident now." Andrew is supervised by **Phil Weinstein** and **Mike Lindsay**, and was presenting at his first overseas conference.

WA Department of Agriculture

Since spring has sprung, **Sonya Broughton** and **David Cousins** have stepped up their field work in citrus, and commenced insecticide trials to investigate the effect of new generation insecticides on western flower thrips, as part of the collaborative project with **Grant Herron**.

Sandra McDougall from NSW Agriculture, a recent visitor to the west to participate in the International Symposium on Aphids held in Fremantle, was able to fit in a visit to see lettuce growers with Sonya and David.

Sonya BROUGHTON

NOTICES

Charles Sturt University PhD scholarship opportunities

Agriculture and sustainability – make a difference!

Three PhD scholarships for 2006 (APAI rate: approx $24,600 pa plus generous operating costs):

(1) biological control of vegetable pests (based NSW Department of Primary Industries, National Centre for Greenhouse Horticulture, Gosford), (2) biological control of vegetable pests (based Charles Sturt University, Orange), and, in conjunction with NSW Department of Primary Industries and funded by Horticulture Australia Ltd., these two scholarships will support the exploration of various aspects of the potential for the predatory ladybeetle, *Hippodamia variegata*, and brown lacewing, *Micromus tasmaniae*, to contribute to effective pest management strategies for greenhouse and inland field vegetable crops. The third project is ecosystem services in cotton landscapes (based Charles Sturt University, Orange).

Funded by the Cotton Catchment Communities CRC, this project will explore a range of aspects as negotiated with the preferred applicant. Applicants with qualifications and experience in fields such as ecology, entomology, pest management, wildlife & vegetation biology, and GIS are encouraged to apply. All applicants should have an Honours degree or equivalent.
Closing date: 20 December 2005.
Please contact Geoff Gurr (ggurr@csu.edu.au/ 02 6365 7551) for details.

AUSTRALIAN ENTOMOLOGICAL SOCIETY INCORPORATED

I,
of
Being a member of the above-named Society, hereby appoint

of
as my proxy to vote for me on my behalf at the Council meetings to be held on the 16th day of August 2004 and the 20th day of August 2004 and the Annual General meeting of the Society to be held on the 17th day of August 2004 and at any adjournment thereof.
Signed this day of 2004.

(Signature)

AUSTRALIAN ENTOMOLOGICAL SOCIETY INCORPORATED
Nomination of Officer or Councillor

I nominate .....

For election to the office of

.....

Name of nominator .....

Signature .....

Date .....

I second this nomination

Name of seconder .....

Signature .....

Date .....

I accept this nomination*

Signature .....

Date .....

*The nominee is requested to attach a typed statement not exceeding 300 words, which includes the following: professional qualifications, address, institution, position held, fields of entomological interest, previous offices or appointments held in the Society; any other information which may be of assistance to members.

Please send all nominations to Nancy Endersby, DPI, Private Bag 15, FERNTREE GULLY DELIVERY CENTRE VIC 3156 before Tuesday 20th July 2004.

THE AUSTRALIAN ENTOMOLOGICAL SOCIETY INC.
NOMINATION FOR MEMBERSHIP

Please return to: Ms Nancy Endersby, AES Secretary, c/o Institute for Horticultural Development, Private Bag 15, Ferntree Gully Delivery Centre VIC 3156 AUSTRALIA

We, the undersigned

Proposer .....
(print name) (signature)

Seconder .....
(print name) (signature)
being financial members of the Society, propose the following for membership of the Australian Entomological Society Inc.

Title.....Initials.....Given name.....Family name.....

of (Address) .....

.....Post Code.....

Tel. .....Fax .....

E-mail ..... Degrees, etc. .....

Interests, experience and publications in entomology for publication in the News Bulletin *Myrmecia* (please attach brief resumé) .....

I accept nomination and undertake, if elected, to abide by the rules of the Society and to pay annual subscriptions by the date prescribed.

Signature ..... **Date**

For **2004**: Annual subscription $110.00 (incl. GST); Electronic Journal only plus paper of or electronic *Myrmecia* $99 (incl. GST) (payment MUST be received by 31 January 2004 if you choose this option); full-time student or retired members $55.00 (incl. GST), joint membership $115.50 (incl. GST).

Students please attach proof of full-time student status
Payment in Australian dollars is required with nomination and may be made by
MONEY ORDER, CHEQUE (made payable to Australian Entomological Society Inc.) or CREDIT CARD

Bankcard Visa Mastercard

Cardholder Name _____
Number _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Expiry date _ _/_ _

Signature _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ I require a receipt YES/ NO